



PATENT
Case No. 6293-456

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

SNYDER et al.

Serial No: 10/821,260

Examiner: T. Mitchell

Filed: April 8, 2004

Group Art Unit: 3771


For: ANTISTATIC MEDICATION
DELIVERY APPARATUS

DECLARATION UNDER 37 CFR § 1.131

1. I/We are named inventors in the above-referenced patent application.
2. An embodiment of the invention of at least claims 1, 2, 6, 7 and 55 (Tab 1) was completed by me/us and constructed under my/our supervision in Canada prior to May 2, 2002. Photographs of the embodiment (Sample S2910) are attached at Tab 2.
3. As set forth at Tab 3, an Aerosol Laboratory Data Report (Tab 3 – dates redacted) was prepared prior to May 2, 2002. As set forth in the Report, one of the devices, similar to the one shown at Tab 2, was “made from a conductive material to eliminate the influence of surface electrostatic charging.” In particular, the device included an antistatic holding chamber made of a plastic material having a surface resistivity of between about 10E10 and about 10E12 ohm/sq. In addition, as shown at Tab 1, the device was see-through.

4. A Memorandum entitled "Electrostatic Charge Study of Three Different PADS Material" (Tab 4 - dates redacted) was prepared prior to May 2, 2002. As summarized in the Memorandum, holding chambers made from three different materials were tested to determine the electrostatic charge properties after a wash-no rinse process and a wash-rinse process. As set forth in the Memorandum, one of the holding chambers, similar to the one shown at Tab 2, was made of an "antistatic polypropylene." As concluded by the authors, "the Antistatic Polypropylene performs the best to minimize the electrostatic charge."

5. All statements made of my/our own knowledge are true, and all statements made on information and belief are believed to be true. I/We am/are aware that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001) and may jeopardize the validity of this application and any patent issuing therefrom.



Sarah Bruce Snyder

Dated: Nov. 27/07

James N. Schmidt

Dated: _____

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Sarah Bruce Snyder

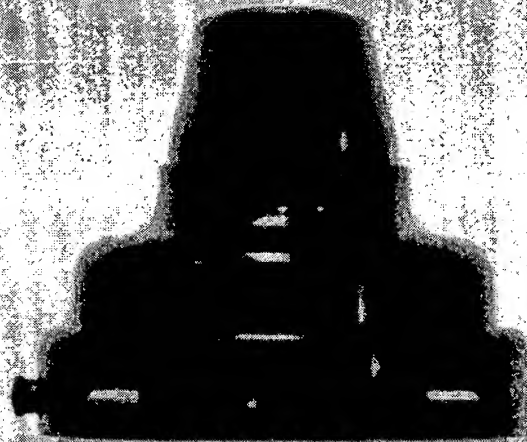
Dated: _____


James N. Schmidt

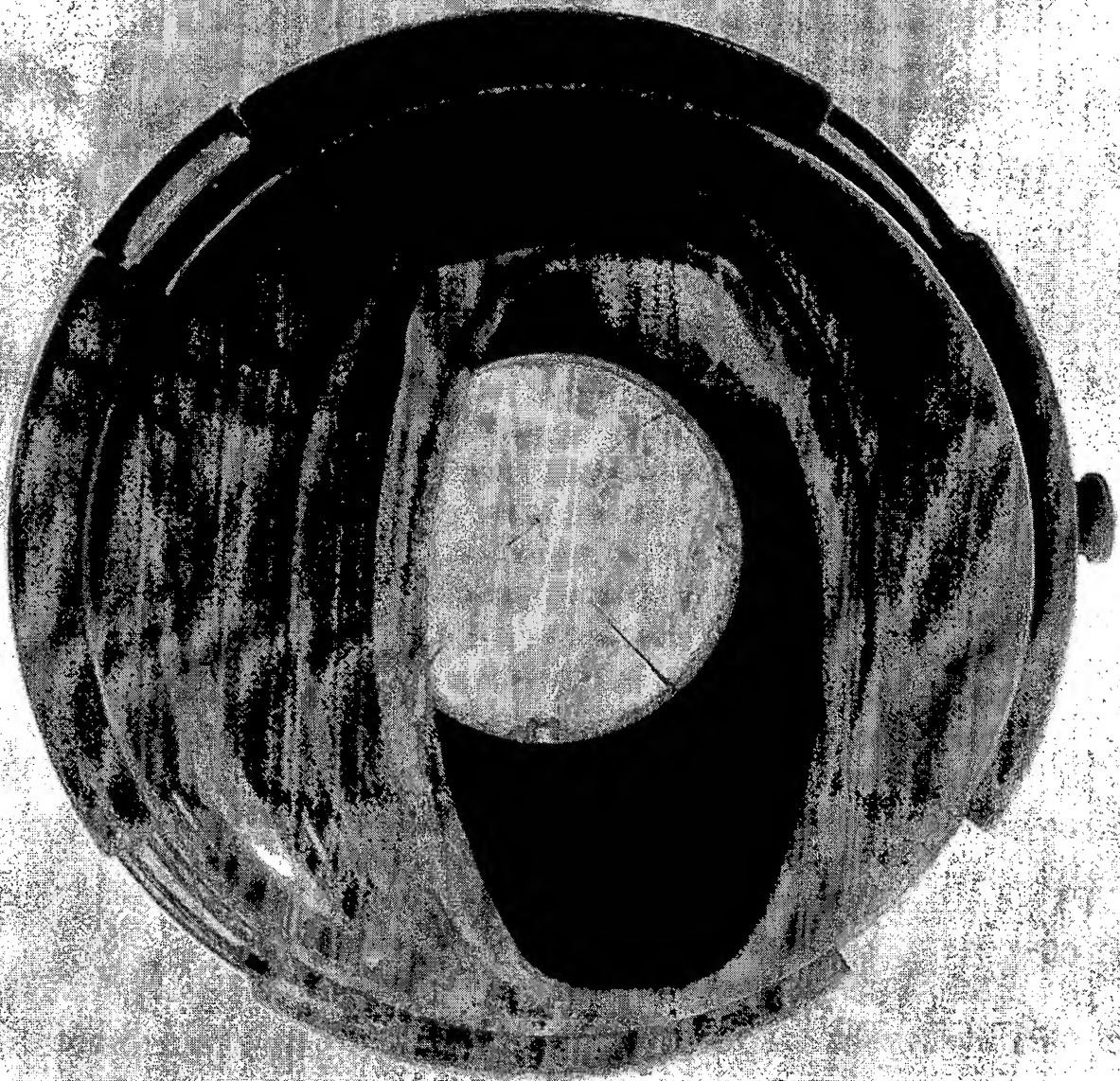
Dated: 28 NOV. 2007

Exemplary Claims in Patent Application S/N 10/821,260

1. A medication delivery apparatus comprising:
 - an antistatic holding chamber comprising a plastic material having a surface resistivity of between about $10E10$ and about $10E12$ ohm/sq, wherein said holding chamber has an input end and an output end spaced apart along a longitudinal axis;
 - a patient interface component connected to said output end and comprising an interior surface defining a flow passage; and
 - a one-way valve disposed adjacent said output end, said one-way valve moveable between an open position and a closed position, wherein said one-way valve has a central opening when in said open position, said central opening defining a flow path along said longitudinal axis, wherein no portion of said interior surface of said patient interface component downstream of said one-way valve intersects said flow path in an orthogonal relationship.
2. The apparatus of claim 1 wherein said plastic material comprises a polypropylene material.
6. The apparatus of claim 1 wherein said material is selected from the group consisting of polypropylene, polycarbonate, polystyrene, nylon, acrylonitrile butadiene styrene, high density polyethylene, acetal, polybutylene terephthalate, and polyethylene terephthalate glycol.
7. The apparatus of claim 1 wherein at least a portion of said holding chamber is see-through.
59. The apparatus of claim 1 wherein said patient interface component comprises a mouthpiece.



329/0



TRUDELL MEDICAL INTERNATIONAL

AEROSOL LABORATORY DATA REPORT

Date:

To: Sarah Bruce

cc. Bob Morton, Martin Foley, Mark Pickard,
Mitch Baran

re: TMAL 789 Job 773,774 and 780 PD 0254

Subject: TOTAL EMITTED DOSE (TED) BY FILTER COLLECTION AT CONSTANT FLOW
RATES OF 4.9, 12.0 AND 28.3 L/MIN – HFA-FLOVENT®/FLIXOTIDE® 44/50:

INTRODUCTION:

Measurements of TED by filter collection (Laboratory Procedure P-030-1 sampling at constant flow rates of 4.9, 12.0 and 28.3 L/min (all $\pm 5\%$) are reported for various low flow (LF) chamber designs (n = 5 devices, 5 replicates per measurement) with HFA Flixotide®/Flovent® 44/50 (50 $\mu\text{g}/\text{dose}$ fluticasone propionate ex metering valve). The devices were either coated with Staticide (TP019B) or made from a conductive material to eliminate the influence of surface electrostatic charging. 5-doses of medication were delivered at 30-s intervals, shaking the pMDI canister 10-times for each measurement. Measurements were made with no delay between pMDI actuation and sampling, and also with 2, 5 and 10 s delay, using the purpose-built apparatus described in Laboratory Procedure P-043 see figure below.

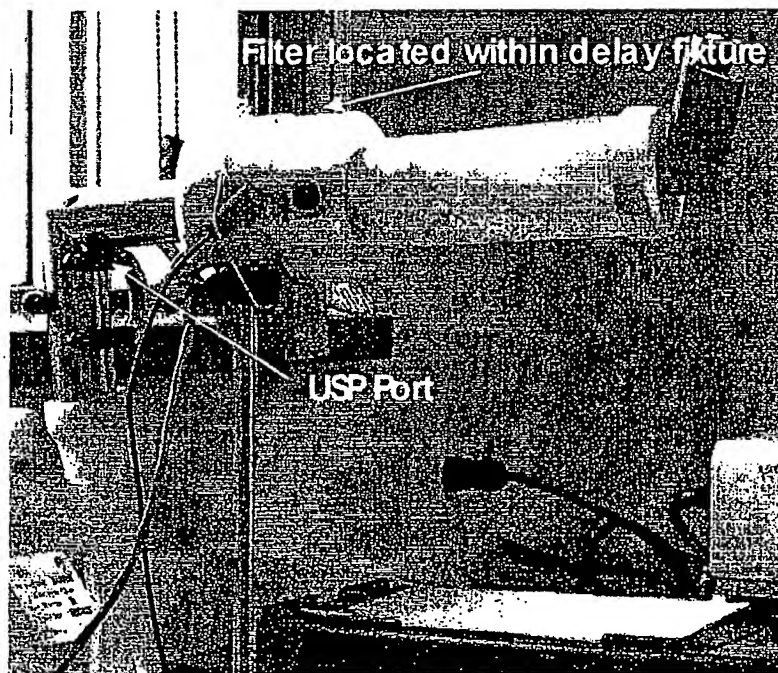


Figure 1. Delay apparatus – Filter testing

RESULTS:

Table 1: Summary of Measurements of TED ($\mu\text{g}/\text{dose}$) at Selected Flow Rates –
Flovent®/Flixotide®-44/50

Job 772

APPENDIX A

n = 5 devices/group; 5 replicates/device

LF Jumbo Chamber (117 mm length / 55mm OD)

mean \pm SD

Delay (s)	Flow Rate (l/min)		
	4.9	12.0	28.3
0	22.0 \pm 3.2	25.4 \pm 3.3	31.8 \pm 2.8
2	17.4 \pm 1.4	20.4 \pm 3.2	23.3 \pm 2.4
5	16.8 \pm 1.9	21.2 \pm 1.5	20.3 \pm 1.6
10	16.6 \pm 2.4	18.8 \pm 1.7	20.0 \pm 1.5

Job 773

APPENDIX B

LF Anti-Static (117 mm length / 50 mmOD)

Delay (s)	Flow Rate (l/min)		
	4.9	12.0	28.3
0	25.2 \pm 2.5	33.7 \pm 4.4	37.6 \pm 2.4
2	23.6 \pm 1.9	26.4 \pm 2.8	23.6 \pm 2.0
5	22.2 \pm 2.2	24.9 \pm 1.5	25.7 \pm 2.8
10	21.2 \pm 2.0	25.7 \pm 1.4	24.6 \pm 2.6

Job 774

APPENDIX C

LF Prototype (AC+ Body)

Delay (s)	Flow Rate (l/min)		
	4.9	12.0	28.3
0	21.9 \pm 2.8	24.6 \pm 2.2	29.0 \pm 2.0
2	14.3 \pm 2.0	19.8 \pm 1.7	21.2 \pm 2.4
5	11.6 \pm 1.5	18.3 \pm 1.2	18.0 \pm 2.4
10	11.1 \pm 1.2	16.6 \pm 2.0	17.9 \pm 2.2

Job 780

APPENDIX D

LF Anti-Static (140 mm length / 50 mmOD)

Delay (s)	Flow Rate (l/min)		
	4.9	12.0	28.3
0	23.8 \pm 3.4	28.6 \pm 2.4	32.9 \pm 2.0
2	18.5 \pm 3.0	27.4 \pm 2.7	29.9 \pm 2.4
5	18.6 \pm 3.9	26.4 \pm 3.2	27.7 \pm 2.5
10	16.1 \pm 2.6	25.8 \pm 3.6	24.1 \pm 2.5

Job 780

APPENDIX E

LF Anti-Static (170 mm length / 50 mmOD)

Delay (s)	Flow Rate (l/min)		
	4.9	12.0	28.3
0	18.8 ± 4.1	30.0 ± 2.4	32.7 ± 2.3
2	17.9 ± 2.6	24.6 ± 3.0	29.9 ± 2.4
5	17.1 ± 5.4	24.6 ± 2.4	27.7 ± 2.5
10	16.6 ± 5.0	24.4 ± 3.3	24.1 ± 2.5

APPENDIX A

INDIVIDUAL DATA LF Jumbo Chamber (117 mm length / 55mm OD)

Job 773 - Low Flow Chamber, 117mm, 55mm diameter, Wash
Rinse, Coated with Staticide,
HFA Flovent® 50 Lot# D016091, Expiry:
5 Doses/Filter, Flow Rate: 4.9lpm,
CD

0 Second Delay

	S 5540	S 5541	S 5542	S 5543	S 5544
Filter 1	21.3	19.5	22.9	20.8	21.8
Filter 2	23.2	22.8	23.7	22.9	24.5
Filter 3	21.9	21.4	11.9	19.7	21.7
Filter 4	25.6	19.9	19.6	20.8	21.4
Filter 5	25.0	30.6	23.5	22.5	21.2
Average	23.4	22.8	20.3	21.3	22.1
Std. Dev.	1.9	4.5	5.0	1.3	1.4

Group Ave	22.0
Group S.D.	3.2

2 Second Delay

	S 5540	S 5541	S 5542	S 5543	S 5544
Filter 1	19.2	18.6	17.6	15.8	16.5
Filter 2	19.6	18.4	19.6	18.8	16.5
Filter 3	17.2	17.4	17.2	18.2	15.8
Filter 4	17.0	16.7	17.9	17.5	15.3
Filter 5	16.8	18.2	13.9	17.1	18.6
Average	18.0	17.9	17.2	17.5	16.5
Std. Dev.	1.3	0.8	2.1	1.1	1.3

Group Ave	17.4
Group S.D.	1.4

5 Second Delay

	S 5540	S 5541	S 5542	S 5543	S 5544
Filter 1	17.3	14.4	19.6	14.7	15.0
Filter 2	17.6	15.7	20.5	19.2	16.7
Filter 3	14.3	15.3	19.7	16.1	17.4
Filter 4	14.4	16.9	17.2	17.7	18.2
Filter 5	14.7	16.3	15.1	15.8	19.8
Average	15.7	15.7	18.4	16.7	17.4
Std. Dev.	1.6	1.0	2.2	1.8	1.8

Group Ave	16.8
Group S.D.	1.9

10 Second Delay

	S 5540	S 5541	S 5542	S 5543	S 5544
Filter 1	17.7	19.9	17.3	16.3	14.6
Filter 2	21.4	18.2	14.6	17.7	19.1
Filter 3	20.9	20.4	13.7	15.0	16.7
Filter 4	16.4	16.7	14.0	13.9	12.8
Filter 5	16.3	16.2	16.2	15.3	13.5
Average	18.5	18.3	15.2	15.6	15.3
Std. Dev.	2.5	1.9	1.5	1.4	2.6

Group Ave	16.6
Group S.D.	2.4

Job 773 - Low Flow Chamber, 117mm, 55mm diameter, Wash
 Rinse, Coated with Staticide,
 HFA Flovent® 50 Lot# AX5791/006,
 5 Doses/Filter, Flow Rate: 12.0 lpm,
 . CD/AM

0 Second Delay

	S 5540	S 5541	S 5542	S 5543	S 5544
Filter 1	28.1	23.2	29.1	29.1	24.9
Filter 2	27.7	26.6	31.2	28.4	26.9
Filter 3	23.3	21.2	24.0	26.5	23.1
Filter 4	26.4	22.8	27.0	30.8	27.3
Filter 5	20.6	17.9	21.6	24.4	22.3
Average	25.2	22.3	26.6	27.8	24.9
Std. Dev.	3.2	3.2	3.9	2.5	2.2

Group Ave	25.4
Group S.D.	3.3

2 Second Delay

	S 5540	S 5541	S 5542	S 5543	S 5544
Filter 1	19.4	21.1	21.8	24.2	25.6
Filter 2	24.2	16.2	21.4	22.2	23.5
Filter 3	20.9	16.4	19.5	22.3	20.9
Filter 4	21.9	18.4	22.9	22.8	22.5
Filter 5	14.2	13.5	17.2	18.5	17.3
Average	20.1	17.1	20.6	22.0	22.0
Std. Dev.	3.7	2.8	2.2	2.1	3.1

Group Ave	20.4
Group S.D.	3.2

5 Second Delay

	S 5540	S 5541	S 5542	S 5543	S 5544
Filter 1	21.8	22.8	21.6	23.3	22.9
Filter 2	19.3	20.1	20.1	20.7	20.4
Filter 3	19.8	21.9	21.5	22.7	22.7
Filter 4	21.2	23.4	22.2	22.5	21.7
Filter 5	22.5	18.7	17.9	19.1	20.1
Average	20.9	21.4	20.7	21.7	21.6
Std. Dev.	1.3	1.9	1.7	1.7	1.3

Group Ave	21.2
Group S.D.	1.5

10 Second Delay

	S 5540	S 5541	S 5542	S 5543	S 5544
Filter 1	21.1	20.5	19.4	21.8	18.3
Filter 2	17.7	16.9	17.4	17.3	17.0
Filter 3	18.4	19.3	17.1	16.8	15.5
Filter 4	18.0	17.5	20.5	18.7	18.8
Filter 5	20.4	20.4	20.5	19.1	21.0
Average	19.1	18.9	19.0	18.7	18.1
Std. Dev.	1.5	1.7	1.6	2.0	2.1

Group Ave	18.8
Group S.D.	1.7

Job 773 - Low Flow Chamber, 117mm, 55mm diameter, Wash
 Rinse, Coated with Staticide,
 HFA Flovent® 50 Lot# AX5791/006,
 5 Doses/Filter, Flow Rate: 28.3 lpm,
 CD,AM

0 Second Delay

	S 5540	S 5541	S 5542	S 5543	S 5544
Filter 1	30.7	32.2	34.8	33.8	40.1
Filter 2	33.3	32.7	34.1	33.5	30.7
Filter 3	30.0	35.1	35.0	29.2	32.2
Filter 4	32.0	30.6	31.3	31.2	30.3
Filter 5	28.5	28.2	30.3	27.8	27.9
Average	30.9	31.8	33.1	31.1	32.2
Std. Dev.	1.8	2.6	2.2	2.6	4.7

Group Ave	31.8
Group S.D.	2.8

2 Second Delay

	S 5540	S 5541	S 5542	S 5543	S 5544
Filter 1	22.3	23.1	23.5	24.0	23.8
Filter 2	20.3	23.4	22.3	27.4	19.2
Filter 3	24.7	26.5	27.5	24.9	23.5
Filter 4	25.2	23.4	17.8	20.1	22.2
Filter 5	22.2	24.2	22.2	26.1	23.7
Average	22.9	24.1	22.7	24.5	22.5
Std. Dev.	2.0	1.4	3.5	2.8	1.9

Group Ave	23.3
Group S.D.	2.4

5 Second Delay

	S 5540	S 5541	S 5542	S 5543	S 5544
Filter 1	23.6	20.7	22.1	22.7	21.0
Filter 2	17.9	18.9	17.9	20.0	19.1
Filter 3	21.6	19.7	19.0	17.3	19.1
Filter 4	19.3	20.6	20.4	19.8	20.0
Filter 5	23.6	21.1	20.6	20.9	20.6
Average	21.2	20.2	20.0	20.1	20.0
Std. Dev.	2.6	0.9	1.6	2.0	0.9

Group Ave	20.3
Group S.D.	1.6

10 Second Delay

	S 5540	S 5541	S 5542	S 5543	S 5544
Filter 1	21.7	20.5	20.6	21.1	19.0
Filter 2	20.8	19.5	18.3	17.9	19.2
Filter 3	23.0	23.7	19.8	19.4	18.1
Filter 4	20.8	19.0	19.0	18.2	18.6
Filter 5	19.8	19.4	22.5	19.1	20.8
Average	21.2	20.4	20.0	19.1	19.1
Std. Dev.	1.2	1.9	1.6	1.3	1.0

Group Ave	20.0
Group S.D.	1.5

APPENDIX B

INDIVIDUAL DATA

LF Anti-Static (117 mm length / 50 mmOD)

5

Job 773 - Low Flow Chamber, 117mm, 50mm diameter, Wash
 Rinse, Antistatic,
 HFA Flovent® 50 Lot# D016091, Expiry:
 5 Doses/Filter, Flow Rate: 4.9lpm,
 SLB

0 Second Delay

	S 5246	S 5247	S 5249	S 5250	S 5253
Filter 1	25.5	23.7	24.0	26.5	24.2
Filter 2	25.8	26.9	22.4	20.7	23.0
Filter 3	32.2	26.5	23.5	24.6	24.4
Filter 4	29.8	27.5	25.4	25.1	25.0
Filter 5	27.6	25.2	24.0	24.7	22.9
Average	28.2	26.0	23.9	24.3	23.9
Std. Dev.	2.8	1.5	1.1	2.2	0.9

Group Ave	25.2
Group S.D.	2.4

2 Second Delay

	S 5246	S 5247	S 5249	S 5250	S 5253
Filter 1	22.5	22.2	25.6	21.9	24.7
Filter 2	21.6	21.3	20.4	22.4	22.0
Filter 3	26.5	27.2	21.9	22.8	25.2
Filter 4	25.1	22.6	23.1	22.3	26.2
Filter 5	24.7	24.6	25.1	23.4	25.9
Average	24.1	23.6	23.2	22.6	24.8
Std. Dev.	2.0	2.4	2.2	0.6	1.7

Group Ave	23.6
Group S.D.	1.9

5 Second Delay

	S 5246	S 5247	S 5249	S 5250	S 5253
Filter 1	19.0	20.4	22.8	23.8	21.9
Filter 2	24.0	21.5	21.9	24.2	23.1
Filter 3	26.9	23.8	23.7	25.3	22.9
Filter 4	23.7	21.9	22.8	20.9	20.8
Filter 5	16.6	19.7	22.0	19.5	20.7
Average	22.0	21.5	22.6	22.7	21.9
Std. Dev.	4.2	1.6	0.7	2.4	1.1

Group Ave	22.2
Group S.D.	2.2

10 Second Delay

	S 5246	S 5247	S 5249	S 5250	S 5253
Filter 1	21.5	20.3	19.9	24.5	23.5
Filter 2	19.3	20.6	17.7	18.9	18.9
Filter 3	22.4	22.2	20.6	22.5	22.0
Filter 4	22.3	22.6	24.8	23.7	23.4
Filter 5	19.2	19.9	18.3	21.4	19.8
Average	20.9	21.1	20.3	22.2	21.5
Std. Dev.	1.6	1.2	2.8	2.2	2.1

Group Ave	21.2
Group S.D.	2.0

Job 773 - Low Flow Chamber, 117mm, 50mm diameter, Wash
 Rinse, Antistatic,
 HFA Flovent® 50 Lot# AX5791/006,
 5 Doses/Filter, Flow Rate: 12.0 lpm,
 SLB

0 Second Delay

	S 5246	S 5247	S 5249	S 5250	S 5253
Filter 1	36.1	31.7	32.6	29.8	35.5
Filter 2	37.1	29.4	28.5	25.8	37.0
Filter 3	37.4	32.5	31.9	28.5	36.5
Filter 4	38.1	33.1	32.6	31.3	42.0
Filter 5	37.2	32.6	29.5	30.5	44.1
Average	37.2	31.9	31.0	29.2	39.0
Std. Dev.	0.7	1.5	1.9	2.2	3.8

Group Ave	33.7
Group S.D.	4.4

2 Second Delay

	S 5246	S 5247	S 5249	S 5250	S 5253
Filter 1	29.4	28.2	29.2	27.4	22.9
Filter 2	30.3	24.8	25.0	24.8	22.8
Filter 3	24.5	23.8	26.4	24.1	25.9
Filter 4	29.0	26.6	28.3	26.7	21.9
Filter 5	29.0	29.1	29.6	30.0	20.4
Average	28.4	26.5	27.7	26.6	22.8
Std. Dev.	2.3	2.2	1.9	2.3	2.0

Group Ave	26.4
Group S.D.	2.8

5 Second Delay

	S 5246	S 5247	S 5249	S 5250	S 5253
Filter 1	24.7	24.9	25.3	25.7	26.0
Filter 2	26.9	24.9	24.8	24.5	26.9
Filter 3	24.5	27.6	24.5	27.6	25.5
Filter 4	22.5	22.9	23.9	25.9	23.6
Filter 5	24.0	22.0	23.0	25.0	25.7
Average	24.5	24.5	24.3	25.7	25.5
Std. Dev.	1.6	2.2	0.9	1.2	1.2

Group Ave	24.9
Group S.D.	1.5

10 Second Delay

	S 5246	S 5247	S 5249	S 5250	S 5253
Filter 1	25.3	24.9	26.4	24.6	24.3
Filter 2	25.4	26.9	26.9	27.8	25.8
Filter 3	27.1	24.7	27.4	23.2	26.2
Filter 4	25.3	26.1	28.5	26.1	25.4
Filter 5	25.5	26.5	25.5	23.9	22.7
Average	25.7	25.8	26.9	25.1	24.9
Std. Dev.	0.8	1.0	1.1	1.8	1.4

Group Ave	25.7
Group S.D.	1.4

Job 773 - Low Flow Chamber, 117mm, 50mm diameter, Wash
Rinse, Antistatic,
HFA Flovent® 50 Lot# AX5791/006,
5 Doses/Filter, Flow Rate: 28.3 lpm,
SLB

0 Second Delay

	S 5246	S 5247	S 5249	S 5250	S 5253
Filter 1	35.8	36.7	37.7	39.3	34.6
Filter 2	41.5	38.2	41.0	36.9	39.0
Filter 3	38.6	38.8	38.7	42.6	34.6
Filter 4	38.5	39.9	36.8	37.6	34.9
Filter 5	38.2	36.4	34.5	33.5	34.9
Average	38.5	38.0	37.7	38.0	35.6
Std. Dev.	2.0	1.5	2.4	3.3	1.9

Group Ave	37.6
Group S.D.	2.4

2 Second Delay

	S 5246	S 5247	S 5249	S 5250	S 5253
Filter 1	22.4	23.4	23.5	24.6	24.2
Filter 2	26.2	27.1	26.4	27.7	27.1
Filter 3	21.4	20.0	22.9	22.8	23.4
Filter 4	23.9	23.1	23.8	23.6	23.9
Filter 5	21.4	21.5	22.7	22.2	20.8
Average	23.1	23.0	23.9	24.2	23.9
Std. Dev.	2.0	2.7	1.5	2.2	2.2

Group Ave	23.6
Group S.D.	2.0

5 Second Delay

	S 5246	S 5247	S 5249	S 5250	S 5253
Filter 1	26.3	26.3	26.4	32.4	28.1
Filter 2	24.8	25.0	30.2	29.4	27.5
Filter 3	24.2	23.9	29.2	25.7	26.3
Filter 4	23.3	23.7	28.5	25.5	23.4
Filter 5	22.7	22.8	21.4	22.7	22.0
Average	24.3	24.3	27.1	27.1	25.5
Std. Dev.	1.4	1.3	3.5	3.8	2.6

Group Ave	25.7
Group S.D.	2.8

10 Second Delay

	S 5246	S 5247	S 5249	S 5250	S 5253
Filter 1	25.2	26.6	26.1	25.7	27.2
Filter 2	25.6	28.7	24.8	26.7	26.4
Filter 3	23.7	24.6	25.9	25.5	25.1
Filter 4	27.1	23.1	23.2	22.0	23.5
Filter 5	19.5	19.2	28.9	22.2	19.5
Average	24.2	24.4	25.8	24.4	24.3
Std. Dev.	2.9	3.6	2.1	2.2	3.1

Group Ave	24.6
Group S.D.	2.6

APPENDIX C

INDIVIDUAL DATA **LF Prototype (AC+ Body)**

Job 774 - Low Flow Chamber, 45mm diameter, Wash - Rinse,
Coated with Staticide,
HFA Flovent® 50 Lot# D016091, Expiry: .
.5 Doses/Filter, Flow Rate: 4.9lpm,
, CD

0 Second Delay

	S 5296	S 5297	S 5298	S 5299	S 5300
Filter 1	19.5	27.0	24.5	23.6	22.0
Filter 2	21.8	25.3	21.6	21.2	21.4
Filter 3	15.6	16.4	17.3	23.5	20.9
Filter 4	21.5	23.5	23.8	26.4	20.9
Filter 5	21.4	21.1	21.2	22.5	24.8
Average	20.0	22.7	21.7	23.4	22.0
Std. Dev.	2.6	4.1	2.8	1.9	1.6

Group Ave	21.9
Group S.D.	2.8

2 Second Delay

	S 5296	S 5297	S 5298	S 5299	S 5300
Filter 1	16.7	15.3	16.9	15.4	16.7
Filter 2	17.0	16.8	17.0	14.5	12.4
Filter 3	13.2	13.3	14.3	12.2	11.3
Filter 4	16.4	14.4	15.3	12.7	11.9
Filter 5	15.7	11.7	12.9	11.2	13.3
Average	15.8	14.3	15.3	13.2	13.1
Std. Dev.	1.5	1.9	1.7	1.7	2.1

Group Ave	14.3
Group S.D.	2.0

5 Second Delay

	S 5296	S 5297	S 5298	S 5299	S 5300
Filter 1	8.5	12.5	13.3	13.3	10.9
Filter 2	13.3	13.0	13.8	12.7	12.4
Filter 3	13.2	11.1	14.0	10.7	10.1
Filter 4	10.0	10.2	12.9	10.7	10.5
Filter 5	9.9	11.0	12.0	10.6	9.5
Average	11.0	11.6	13.2	11.6	10.7
Std. Dev.	2.2	1.2	0.8	1.3	1.1

Group Ave	11.6
Group S.D.	1.5

10 Second Delay

	S 5296	S 5297	S 5298	S 5299	S 5300
Filter 1	11.8	12.8	11.2	10.7	10.2
Filter 2	10.3	11.7	12.8	11.1	13.2
Filter 3	13.0	10.2	11.1	9.8	10.0
Filter 4	12.3	10.2	10.5	10.6	8.9
Filter 5	11.5	11.5	11.2	12.7	8.9
Average	11.8	11.3	11.4	11.0	10.2
Std. Dev.	1.0	1.1	0.9	1.1	1.8

Group Ave	11.1
Group S.D.	1.2

Job 774 - Low Flow Chamber, 45mm diameter, Wash - Rinse,
Coated with Staticide,
HFA Flovent® 50 Lot# AX5791/006,
5 Doses/Filter, Flow Rate: 12.0 lpm,
CD

0 Second Delay

	S 5296	S 5297	S 5298	S 5299	S 5300
Filter 1	27.6	25.9	25.1	26.7	26.2
Filter 2	27.2	25.3	27.5	25.1	26.5
Filter 3	26.6	25.4	26.2	26.2	25.7
Filter 4	23.1	22.7	24.9	22.5	20.6
Filter 5	21.1	21.5	21.5	22.0	22.4
Average	25.1	24.2	25.0	24.5	24.3
Std. Dev.	2.9	1.9	2.2	2.1	2.6

Group Ave	24.6
Group S.D.	2.2

2 Second Delay

	S 5296	S 5297	S 5298	S 5299	S 5300
Filter 1	19.8	18.9	18.5	16.8	20.3
Filter 2	20.8	20.4	21.3	21.9	19.4
Filter 3	19.1	20.8	23.2	18.4	19.9
Filter 4	16.9	17.9	21.8	21.3	17.4
Filter 5	19.4	18.1	22.7	19.9	18.9
Average	19.2	19.2	21.5	19.7	19.2
Std. Dev.	1.4	1.3	1.8	2.1	1.1

Group Ave	19.8
Group S.D.	1.7

5 Second Delay

	S 5296	S 5297	S 5298	S 5299	S 5300
Filter 1	18.6	19.8	17.5	15.9	19.4
Filter 2	17.3	19.0	17.9	16.4	19.6
Filter 3	17.7	19.8	20.9	19.9	16.9
Filter 4	17.5	17.3	18.9	18.6	17.3
Filter 5	17.4	17.8	19.5	18.6	18.8
Average	17.7	18.7	18.9	17.9	18.4
Std. Dev.	0.5	1.1	1.4	1.7	1.2

Group Ave	18.3
Group S.D.	1.2

10 Second Delay

	S 5296	S 5297	S 5298	S 5299	S 5300
Filter 1	14.1	17.3	17.0	19.6	16.1
Filter 2	16.6	17.1	19.0	18.1	16.7
Filter 3	13.5	16.5	19.9	15.4	16.3
Filter 4	14.1	13.7	16.8	18.5	17.6
Filter 5	11.9	16.0	20.0	16.8	17.4
Average	14.0	16.1	18.5	17.7	16.8
Std. Dev.	1.7	1.4	1.5	1.6	0.7

Group Ave	16.6
Group S.D.	2.0

Job 774 - Low Flow Chamber, 45mm diameter, Wash - Rinse,
Coated with Staticide,
HFA Flovent® 50 Lot# AX5791/006,
5 Doses/Filter, Flow Rate: 28.3 lpm,
CD

0 Second Delay

	S 5296	S 5297	S 5298	S 5299	S 5300
Filter 1	28.3	28.1	27.4	29.5	27.9
Filter 2	29.5	29.0	29.1	29.8	28.5
Filter 3	26.9	29.5	26.1	26.4	31.3
Filter 4	29.6	28.2	29.5	30.0	31.3
Filter 5	27.7	34.1	29.4	25.1	32.2
Average	28.4	29.8	28.3	28.2	30.2
Std. Dev.	1.2	2.5	1.5	2.3	1.9

Group Ave	29.0
Group S.D.	2.0

2 Second Delay

	S 5296	S 5297	S 5298	S 5299	S 5300
Filter 1	17.4	16.1	18.6	20.1	21.2
Filter 2	21.2	21.2	22.0	22.6	21.9
Filter 3	19.1	19.7	21.4	22.5	20.7
Filter 4	23.9	21.9	22.7	22.9	20.1
Filter 5	28.6	19.0	22.0	20.6	21.6
Average	22.0	19.6	21.3	21.7	21.1
Std. Dev.	4.4	2.3	1.6	1.3	0.7

Group Ave	21.2
Group S.D.	2.4

5 Second Delay

	S 5296	S 5297	S 5298	S 5299	S 5300
Filter 1	15.3	14.8	18.4	19.9	18.5
Filter 2	16.7	17.2	21.1	20.3	19.8
Filter 3	15.9	16.8	20.1	19.5	21.6
Filter 4	15.5	16.6	20.0	22.0	18.4
Filter 5	13.3	14.2	17.1	18.9	17.4
Average	15.3	15.9	19.3	20.1	19.1
Std. Dev.	1.3	1.3	1.6	1.2	1.6

Group Ave	18.0
Group S.D.	2.4

10 Second Delay

	S 5296	S 5297	S 5298	S 5299	S 5300
Filter 1	13.0	17.8	18.5	19.7	16.8
Filter 2	16.7	18.8	21.7	22.2	17.2
Filter 3	15.9	19.4	19.5	21.4	18.1
Filter 4	16.5	18.8	18.0	20.0	16.6
Filter 5	13.7	17.4	16.5	18.1	15.8
Average	15.2	18.4	18.8	20.3	16.9
Std. Dev.	1.7	0.8	1.9	1.6	0.9

Group Ave	17.9
Group S.D.	2.2

APPENDIX D

INDIVIDUAL DATA

LF Anti-Static (140 mm length / 50 mmOD)

Job 780 - Low Flow Chamber, 140mm,
Wash - No Rinse,
HFA Flovent® 50 Lot# D016091, Expiry:
5 Doses/Filter, Flow Rate: 4.9lpm,
SLB

0 Second Delay

	S 5567	S 5568	S 5569	S 5570	S 5571
Filter 1	30.3	25.9	25.7	26.7	24.3
Filter 2	29.4	26.9	27.3	26.3	25.6
Filter 3	24.7	22.0	22.7	20.6	18.4
Filter 4	25.4	25.9	24.0	21.9	22.7
Filter 5	19.4	21.9	20.8	20.1	16.6
Average	25.9	24.5	24.1	23.1	21.5
Std. Dev.	4.3	2.4	2.5	3.2	3.8

Group Ave	23.8
Group S.D.	3.4

2 Second Delay

	S 5567	S 5568	S 5569	S 5570	S 5571
Filter 1	22.3	22.2	21.0	22.0	18.9
Filter 2	23.7	24.7	20.1	19.6	14.5
Filter 3	17.4	17.6	14.4	15.3	18.6
Filter 4	17.9	20.3	18.3	17.9	15.7
Filter 5	15.7	15.8	15.7	14.5	19.3
Average	19.4	20.1	17.9	17.9	17.4
Std. Dev.	3.4	3.5	2.8	3.1	2.1

Group Ave	18.5
Group S.D.	3.0

5 Second Delay

	S 5567	S 5568	S 5569	S 5570	S 5571
Filter 1	19.1	22.0	18.5	20.3	11.7
Filter 2	16.2	17.3	21.4	20.8	23.1
Filter 3	20.0	21.1	22.2	19.3	10.2
Filter 4	17.0	15.8	25.5	21.1	18.3
Filter 5	19.6	11.1	22.5	14.5	15.3
Average	18.4	17.5	22.0	19.2	15.7
Std. Dev.	1.7	4.4	2.5	2.7	5.2

Group Ave	18.6
Group S.D.	3.9

10 Second Delay

	S 5567	S 5568	S 5569	S 5570	S 5571
Filter 1	14.7	20.4	13.4	16.0	14.3
Filter 2	18.6	14.7	18.8	12.1	13.7
Filter 3	16.8	19.0	15.5	16.5	15.2
Filter 4	22.4	13.9	18.0	12.9	14.2
Filter 5	16.2	19.7	15.3	16.5	14.6
Average	17.7	17.5	16.2	14.8	14.4
Std. Dev.	3.0	3.0	2.2	2.1	0.6

Group Ave	16.1
Group S.D.	2.6

Job 780 - Low Flow Chamber, 140mm,
Wash - No Rinse,
HFA Flovent® 50 Lot# AX5791/006,
5 Doses/Filter, Flow Rate: 12.0 lpm,
SLB

0 Second Delay

	S 5567	S 5568	S 5569	S 5570	S 5571
Filter 1	30.6	27.9	27.7	27.4	26.8
Filter 2	29.9	29.5	28.9	30.4	31.3
Filter 3	33.1	30.7	30.1	31.7	32.5
Filter 4	25.2	23.5	25.1	27.0	26.9
Filter 5	26.5	26.9	28.5	26.8	29.3
Average	29.1	27.7	28.1	28.7	29.4
Std. Dev.	3.2	2.8	1.9	2.2	2.6

Group Ave	28.6
Group S.D.	2.4

2 Second Delay

	S 5567	S 5568	S 5569	S 5570	S 5571
Filter 1	22.8	24.3	25.6	28.0	31.9
Filter 2	25.6	33.8	28.0	26.8	28.6
Filter 3	24.9	27.2	29.5	30.7	29.8
Filter 4	23.1	25.4	27.1	27.1	25.4
Filter 5	25.7	27.4	27.6	29.7	29.9
Average	24.4	27.6	27.6	28.5	29.1
Std. Dev.	1.4	3.7	1.4	1.7	2.4

Group Ave	27.4
Group S.D.	2.7

5 Second Delay

	S 5567	S 5568	S 5569	S 5570	S 5571
Filter 1	27.2	25.8	26.5	26.6	25.2
Filter 2	27.5	30.2	31.3	28.8	27.4
Filter 3	27.5	29.0	27.5	28.2	30.0
Filter 4	19.0	21.3	21.1	20.4	22.1
Filter 5	25.2	28.5	27.3	27.7	28.9
Average	25.3	27.0	26.7	26.3	26.7
Std. Dev.	3.6	3.6	3.7	3.4	3.1

Group Ave	26.4
Group S.D.	3.2

10 Second Delay

	S 5567	S 5568	S 5569	S 5570	S 5571
Filter 1	29.3	22.9	22.9	22.2	21.2
Filter 2	32.8	32.8	26.5	26.3	24.1
Filter 3	30.9	28.5	27.0	25.2	27.3
Filter 4	22.5	21.6	21.9	19.6	22.4
Filter 5	28.6	28.3	27.9	26.4	26.8
Average	28.8	26.8	25.2	23.9	24.4
Std. Dev.	3.9	4.6	2.6	3.0	2.7

Group Ave	25.8
Group S.D.	3.6

Job 773 - Low Flow Chamber, 140mm,
Wash - No Rinse,
HFA Flovent® 50 Lot# AX5791/006,
5 Doses/Filter, Flow Rate: 28.3 lpm,
SLB

0 Second Delay

	S 5567	S 5568	S 5569	S 5570	S 5571
Filter 1	31.3	31.2	31.2	30.1	29.6
Filter 2	32.8	32.3	32.6	30.5	32.7
Filter 3	37.3	35.0	35.6	33.6	35.2
Filter 4	34.6	34.4	34.6	31.3	32.6
Filter 5	34.2	33.4	34.7	30.9	31.1
Average	34.0	33.2	33.7	31.3	32.2
Std. Dev.	2.2	1.5	1.8	1.4	2.1

Group Ave	32.9
Group S.D.	2.0

2 Second Delay

	S 5567	S 5568	S 5569	S 5570	S 5571
Filter 1	25.6	29.7	30.9	28.6	27.7
Filter 2	28.9	26.6	29.6	32.0	31.0
Filter 3	30.3	31.7	30.9	29.9	35.1
Filter 4	27.6	30.0	31.5	31.2	26.6
Filter 5	26.5	28.6	32.4	34.1	30.7
Average	27.8	29.3	31.1	31.1	30.2
Std. Dev.	1.9	1.9	1.0	2.1	3.3

Group Ave	29.9
Group S.D.	2.4

5 Second Delay

	S 5567	S 5568	S 5569	S 5570	S 5571
Filter 1	31.8	22.0	31.0	28.2	25.5
Filter 2	30.5	28.2	26.0	28.0	25.5
Filter 3	30.7	28.5	29.2	29.3	29.5
Filter 4	27.5	29.5	24.7	25.2	24.2
Filter 5	28.3	23.9	26.6	29.0	29.1
Average	29.8	26.4	27.5	27.9	26.8
Std. Dev.	1.8	3.3	2.6	1.6	2.4

Group Ave	27.7
Group S.D.	2.5

10 Second Delay

	S 5567	S 5568	S 5569	S 5570	S 5571
Filter 1	22.7	22.5	21.6	23.0	25.0
Filter 2	22.5	22.0	21.2	23.4	24.5
Filter 3	22.4	28.4	24.5	25.5	26.6
Filter 4	19.1	21.5	23.4	25.4	25.3
Filter 5	23.3	24.3	26.0	26.9	31.1
Average	22.0	23.7	23.3	24.9	26.5
Std. Dev.	1.7	2.8	2.0	1.6	2.7

Group Ave	24.1
Group S.D.	2.5

APPENDIX E

INDIVIDUAL DATA

LF Anti-Static (170 mm length / 50 mmOD)

Job 780 - Low Flow Chamber, 170mm length,
Wash - No Rinse, Antistatic,
HFA Flovent® 50 Lot# D016091, Expiry:
5 Doses/Filter, Flow Rate: 4.9lpm,
CD

0 Second Delay

	S 5562	S 5563	S 5564	S 5565	S 5566
Filter 1	19.9	16.9	16.4	13.5	16.1
Filter 2	14.8	12.6	14.1	11.8	13.3
Filter 3	24.1	23.7	23.3	22.7	25.3
Filter 4	18.4	22.5	21.2	17.5	17.5
Filter 5	22.6	22.3	18.7	22.3	18.3
Average	20.0	19.6	18.8	17.6	18.1
Std. Dev.	3.6	4.7	3.7	5.0	4.4

Group Ave	18.8
Group S.D.	4.1

2 Second Delay

	S 5562	S 5563	S 5564	S 5565	S 5566
Filter 1	18.2	17.4	19.9	18.4	14.3
Filter 2	16.4	16.7	16.5	12.9	13.4
Filter 3	22.2	20.3	19.5	22.3	18.4
Filter 4	19.5	17.6	19.5	19.8	20.2
Filter 5	16.0	14.7	14.8	19.3	19.4
Average	18.5	17.3	18.0	18.6	17.1
Std. Dev.	2.5	2.0	2.3	3.5	3.1

Group Ave	17.9
Group S.D.	2.6

5 Second Delay

	S 5562	S 5563	S 5564	S 5565	S 5566
Filter 1	19.2	20.1	20.5	24.4	22.1
Filter 2	16.0	21.9	19.1	18.0	19.5
Filter 3	13.9	12.4	11.0	12.4	11.4
Filter 4	11.9	10.1	10.0	9.0	8.9
Filter 5	25.7	21.3	21.6	22.8	24.0
Average	17.4	17.2	16.4	17.3	17.2
Std. Dev.	5.4	5.5	5.5	6.6	6.7

Group Ave	17.1
Group S.D.	5.4

10 Second Delay

	S 5562	S 5563	S 5564	S 5565	S 5566
Filter 1	12.0	20.6	23.3	22.7	23.5
Filter 2	12.7	12.9	9.9	9.5	10.3
Filter 3	20.0	13.1	10.2	11.8	10.0
Filter 4	20.4	21.1	22.0	20.6	17.8
Filter 5	23.2	17.7	17.7	16.1	17.1
Average	17.7	17.1	16.6	16.1	15.7
Std. Dev.	5.0	4.0	6.4	5.6	5.7

Group Ave	16.6
Group S.D.	5.0

Job 780 - Low Flow Chamber, 170 mm length,
Wash - No Rinse, Antistatic,
HFA Flovent® 50 Lot# AX5791/006,
5 Doses/Filter, Flow Rate: 12.0 lpm,
CD

0 Second Delay

	S 5562	S 5563	S 5564	S 5565	S 5566
Filter 1	33.4	30.6	31.5	27.9	27.5
Filter 2	32.8	31.0	29.8	27.4	26.3
Filter 3	27.3	31.3	26.0	26.3	28.6
Filter 4	34.6	31.1	32.1	31.4	31.6
Filter 5	32.4	32.2	28.1	28.9	29.4
Average	32.1	31.2	29.5	28.4	28.7
Std. Dev.	2.8	0.6	2.5	1.9	2.0

Group Ave	30.0
Group S.D.	2.4

2 Second Delay

	S 5562	S 5563	S 5564	S 5565	S 5566
Filter 1	20.8	20.8	22.1	23.5	24.1
Filter 2	24.3	29.8	24.6	26.7	26.7
Filter 3	24.3	25.6	24.6	27.0	22.6
Filter 4	27.5	25.7	25.9	26.0	28.6
Filter 5	23.5	23.6	15.4	27.9	22.6
Average	24.1	25.1	22.5	26.2	24.9
Std. Dev.	2.4	3.3	4.2	1.7	2.6

Group Ave	24.6
Group S.D.	3.0

5 Second Delay

	S 5562	S 5563	S 5564	S 5565	S 5566
Filter 1	22.9	22.5	22.9	18.8	25.1
Filter 2	26.2	27.5	26.3	17.3	26.0
Filter 3	25.0	24.8	25.9	26.3	27.4
Filter 4	23.7	23.8	24.6	25.6	25.9
Filter 5	26.4	27.1	23.2	24.4	26.0
Average	24.8	25.1	24.6	22.5	26.1
Std. Dev.	1.5	2.2	1.5	4.1	0.9

Group Ave	24.6
Group S.D.	2.4

10 Second Delay

	S 5562	S 5563	S 5564	S 5565	S 5566
Filter 1	25.2	22.7	19.4	19.9	16.7
Filter 2	26.0	27.9	25.6	24.3	25.6
Filter 3	27.1	31.1	27.0	25.6	24.7
Filter 4	24.1	26.3	23.1	25.0	21.8
Filter 5	30.8	21.9	23.1	22.3	23.6
Average	26.7	26.0	23.6	23.4	22.5
Std. Dev.	2.6	3.8	2.9	2.3	3.5

Group Ave	24.4
Group S.D.	3.3

Job 780 - Low Flow Chamber, 170 mm length,
Wash - No Rinse, Coated with Staticide,
HFA Flovent® 50 Lot# AX5791/006,
5 Doses/Filter, Flow Rate: 28.3 lpm,
CD

0 Second Delay

	S 5562	S 5563	S 5564	S 5565	S 5566
Filter 1	35.0	33.3	34.1	33.0	33.4
Filter 2	27.5	32.2	31.4	30.7	30.1
Filter 3	34.5	34.1	34.4	31.6	34.3
Filter 4	36.4	30.1	31.3	30.5	30.8
Filter 5	33.9	31.4	38.4	33.2	32.0
Average	33.5	32.2	33.9	31.8	32.1
Std. Dev.	3.5	1.6	2.9	1.3	1.8

Group Ave	32.7
Group S.D.	2.3

2 Second Delay

	S 5562	S 5563	S 5564	S 5565	S 5566
Filter 1	24.6	26.3	29.0	30.3	31.3
Filter 2	25.5	28.8	31.2	31.1	29.4
Filter 3	16.2	29.7	30.3	30.0	30.0
Filter 4	26.4	26.9	23.3	30.7	32.0
Filter 5	31.5	29.1	30.1	30.7	29.3
Average	24.8	28.2	28.8	30.6	30.4
Std. Dev.	5.5	1.5	3.2	0.4	1.2

Group Ave	28.5
Group S.D.	3.4

5 Second Delay

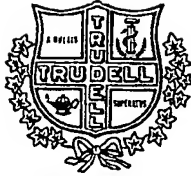
	S 5562	S 5563	S 5564	S 5565	S 5566
Filter 1	28.4	28.3	28.2	27.0	28.9
Filter 2	27.2	27.6	25.0	27.0	29.1
Filter 3	27.3	28.8	27.1	28.1	28.4
Filter 4	29.0	27.1	26.4	24.3	26.3
Filter 5	29.6	26.0	28.5	28.3	27.4
Average	28.3	27.6	27.0	27.0	28.0
Std. Dev.	1.1	1.1	1.4	1.6	1.2

Group Ave	27.6
Group S.D.	1.3

10 Second Delay

	S 5562	S 5563	S 5564	S 5565	S 5566
Filter 1	29.5	27.0	27.8	25.6	24.5
Filter 2	30.6	29.5	22.3	27.3	26.7
Filter 3	33.9	29.5	24.9	17.1	27.4
Filter 4	29.4	25.5	23.2	25.1	25.2
Filter 5	31.3	29.1	23.3	24.1	24.1
Average	30.9	28.1	24.3	23.8	25.6
Std. Dev.	1.8	1.8	2.2	4.0	1.4

Group Ave	26.6
Group S.D.	3.5



Established 1922

TRUETT MEDICAL INTERNATIONAL

Electrostatic Charge Study Of Three Different PADS Material

DATE:

TO: Sarah Bruce, James Schmidt, Bob Morton

FROM: Adam Meyer

RE: Results of Electrostatic Charge Testing on Three Different PADS Material

PURPOSE

To determine the electrostatic charge properties of three different PADS material after a wash-no rinse process and a wash-rinse process.

MATERIALS

Five PADS bodies, 170mm with baffle, made from the Antistatic Polypropylene
Five PADS bodies, 170mm with baffle, made from the Steel Fiber Polypropylene
Five PADS bodies, 170mm with baffle, made from the Clarified Polypropylene
Faraday Cage
A sample of carpet

PROCEDURE

1. All of the PADS bodies were measured for electrostatic charge directly out of the box using the Faraday cage.
2. The bodies were then rubbed on a sample of carpet for 15 seconds to induce a charge.
3. Electrostatic charge measurements were taken again.
4. All of the bodies were then washed without a rinse and left to dry according to standard procedures.
5. Electrostatic charge measurements were taken again.
6. The bodies were rubbed on the carpet again and measured for electrostatic charge.
7. All of the bodies were then washed, rinsed and left to dry according to standard procedures.
8. Electrostatic charge measurements were taken again.
9. The bodies were rubbed on the carpet again and measured for electrostatic charge.
10. It should be noted that the operator was gloved and grounded during all electrostatic measurements

RESULTS

Material	Device #	Initial (Out of Box)	Induce Static	Wash/No Rinse	Induce Static	Wash Rinse	Induce Static
Clarified PP	1	-0.8	-32.0	4.2	-75.5	4.8	-121.0
	2	-2.4	-18.1	0.4	-60.5	3.4	-123.6
	3	-3.9	-14.2	1.0	-80.3	2.9	-113.3
	4	-7.1	-26.6	0.5	-68.0	1.4	-120.9
	5	-1.1	-33.1	0.5	-71.8	8.2	-133.5
Antistatic PP	6	0.8	0.4	0.6	0.6	1.4	1.3
	7	0.7	0.4	0.9	0.1	0.9	1.2
	8	1.0	0.5	1.0	0.5	1.7	0.4
	9	2.0	0.7	0.8	0.8	1.3	0.3
	10	1.1	1.6	0.8	0.6	1.6	0.4
Steel Fiber PP	11	2.5	-4.9	2.3	-0.1	1.0	-25.8
	12	1.3	1.3	1.5	4.1	3.0	-18.6
	13	-5.4	-8.1	4.6	1.1	0.5	-13.0
	14	6.1	-14.8	6.3	-1.4	1.9	-13.4
	15	1.5	-8.7	6.5	-6.4	0.4	-8.4

Table 1 - Electrostatic Charge Measurements

OBSERVATIONS

Table 1 shows that the Antistatic Polypropylene material resists electrostatic charge the best. The electrostatic measurements remained consistently low and positive during all testing. It was not possible to induce a charge on the Antistatic material, and the wash/no rinse and the wash/rinse had no effect on the charge.

It was possible to induce a charge on the Steel Fiber Polypropylene material after a wash/rinse process. The wash/no rinse had little effect on the Steel Fiber material except that all measurements were positive.

The Clarified Polypropylene had little charge out of the box, but was able to sustain a charge after rubbing it on the carpet. The induced charge in this case was negative. A large charge was induced on the Clarified material after the wash/rinse process. The wash/no rinse process also allowed a large charge to be induced, but not as severe as the wash/rinse process. The induced charge dropped off significantly after a couple of minutes in all cases.

CONCLUSIONS

It is concluded that the Antistatic Polypropylene performs the best to minimize the electrostatic charge. The Steel Fiber Polypropylene and the Clarified Polypropylene do not exhibit the same characteristics as the Antistatic material.